ETASIS

Redundant Power Supply

EFRP-x462

SERIES

- ✓ Industrial Computer
- ✓ File Server System
- ✓ Raid Subsystem
- ✓ ……
- ✓ ……

Revision: 1.1
JULY 29, 2004

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Warranty

Two(2)years manufacture's warranty. Date code indicating week and year of manufacture.

Warning

More than One Power Supply cord:

"CAUTION: THIS UNIT HAS MORE THAN ONE POWER SUPPLY CORD. DISCONNECT (state number of cords) POWER SUPPLY CORDS BEFORE SERVICING TO AVOID ELECTRIC SHOCK" and "ATTENTION: CET APPRAEIL COMPORTE PLUS D'UN CORDON D' ALIMENTATION. RAFIN DE PRÉVENIR LES CHOCS ELECTRQUES, DEBRANCHER LES (donner le nombre de cordons) CORDONS D'ALIMENTATION AVANT DE FAIRE LE DÉPANNAGE"

This machine is dangerous high voltage inside the case. Under no circumstance is this case to be opened to repair unless professional person. Please do not remove the label to keep warranty.

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1. Introduction

The EFRP Series redundant power supply with the most compact 5" parallel modular configuration designed based on the *N+1*, load sharing and accurate Redundancy idea and conception. The EFRP series of high reliability power supplies are designed for file server and industrial systems requiring redundancy and modularity. These high-density units meet the electrical and mechanical requirements and diversified into various applications. Current sharing, internal or-ing diodes and a hot plug input/output/signal connector provide a stand along redundant power solution.

This EFRP-x462 series redundant power supply, it consists of:

1) One of backplane (control board)
2) One of frame power chassis or leading rails
3) Two or Tree or Four of compact size power modules with Hot-Pluggable connector (based on Power Supply Model No.)
4) Screw package (Optional)
5) Alarm reset extended cable. (Optional)
6) Mounting Bracket (Optional)
7) DC extend Y-cable (Optional)
8) User Manual

Features

- Easy to install, Hot-Swap and maintain
- Internal OR-ing diodes for N+1 power Supply operation
- Compact 5" Size designed module diversified to various applications
- Golden-Pin Din Connectors provide perfect transit
- Universal AC input
- With Active Power Factor Correction
- Front panel LEDS for AC input power and DC output power status
- Power fault alarm system
- Meet latest EPS1U specification
- Standard PC connection/wiring interface
- MTBF (Demonstrated) greater than 100,000 hours
- 2 years Warranty

Model Number Identification

EFRP- X XX X [X] [ZZZZ]

EFRP		ETASIS Floppy Redundant Power Supply
First	X	X could be 1 or 2,3,4; showing how many modules
		1: one module; 2: 1+1; 3: 2+1; 4: 3+1
Second	XX	number x 10 = total output watts
Third	X	showing different form factor or mechanical for power series number
Fourth	[X]	X could be blink or A to Z; blink: vertical type power;
		Blink: vertical type of modules assembling type.
		H: horizontal type of modules assembling type.
		S: shorter power housing than Standard power housing.
		F: For assembling in front of System chassis
		Others: will be identified by further revision.
Fifth	[ZZZZ]	For different series code

Example: EFRP-2462

2: module x 2=>1+1 redundant P/S

46 ×10=460 (watts of module)

1×460+460=460W+460W

2. Specification

Input Voltage & Current

Input voltage range set with active power factor correction.

Normal	Frequency	Minimum	Maximum	Current
100-240VAC	47 Hz to 63 Hz	90 VAC	264VAC	5A

DC Output Characteristics

To be met under all combinations of loading.

Output Voltage	+5V	+3.3V	+12V	-5V	-12V	5VSB
Max. Load	25A	25A	30A	--	0.8A	2.0A
Max. Power	440W			--		

2.3 Efficiency: 65% min

2.4 Hold-Up Time: >17mS.

2.5 Power Good Signal delay time: greater than 100 ms but less than 500 ms.

2.6 Over Power Protection: overloaded to 110~150%

2.7 Over Voltage Protection

+5VDC: 5.7VDC—6.5VDC

+12VDC: 13.3VDC—14.5VDC

+3.3VDC: 3.9VDC—4.5VDC

2.8 Short Circuit Protection: shall cause no damage to this unit.

2.9 +5VSB (Standby): The +5VSB output is always on

2.10 PS-ON (Remote ON/OFF):

Shall be enabled with an active-low, TTL-compatible signal ('PS-ON').

2.11 Power System Fault Signal

The Hot-Swap Redundant Power Supply shall give fault signal (an open collector output = nGood)

2.12 Power Module Fault Signal & AC OK,DC OK indicated led

There are three TTL signal to indicate the status of each power unit operation.

2.13 Alarm Beeping Sound

The alarm system will give a beeping sound to indicate the power supply failure until that particular power unit is replaced.

2.14 Cooling

Minimum at 13 CFM per unit of fan

2.15 Temperature

Operating: 32 to 104 °F (0 to 40 °C).

Non-Operating: -4.0 to 140 °F (-20 to 60°C)

2.16 Relative Humidity

Operating: 20 to 90 % non-condensing at 104°F (40 °C)

Non-Operating: 5 to 95 % non-condensing at 122°F (50°C)

2.17 Altitude

Operating: Sea level to 10,000 feet

Non-Operating: Sea level to 40,000 feet

2.18 Regulatory Agency Certification

RFI/EMI Standards

a) FCC part 15, Subpart B, Class B computing devices

b) CISPR22 (EN55022) Class B.

Safety Standards

a) UL 1950 & cUL (Information Processing/Business equipment).

b) TUV Certification to IEC 950 lst edition with Amendment #1, #2, and EN60950

c) CB Certification

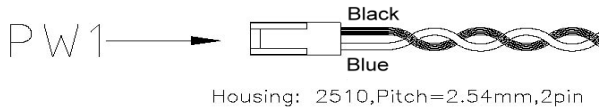
2.19 Mean Time Between failures (MTBF)

MTBF > 100,000 hours at 25°C

3. Pin assignment & Function of Connection

※ LED connector of Power #1(PW1) (Optional)

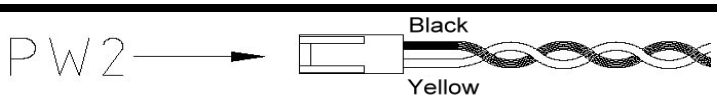
Pin #	Output	Color	Size
1	+5V	Blue	24 AWG
2	GND	Black	24 AWG



Housing: 2510,Pitch=2.54mm,2pin

※LED connector of Power #2(PW2) (Optional)

Pin #	Output	Color	Size
1	+5V	Yellow	24 AWG
2	GND	Black	24 AWG

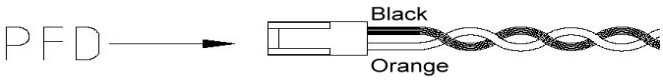


Housing: 2510,Pitch=2.54mm,2pin

※ Connector for Power Fault Signal (PFD) (Optional)

A Type:

Pin #	Output	Color	Size
1	TTL Signal	Orange	24 AWG
2	GND	Black	24 AWG



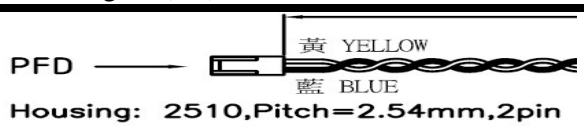
Housing: 2510,Pitch=2.54mm,2pin

B Type: (Optional for TTL Signal)

Pin #	Signal	Output	Color	AWG
1	Power 1	TTL Signal	Brown	24 AWG
2	Power 2	TTL Signal	RED	24 AWG
3	Power 3	TTL Signal	Orange	24 AWG
4	Power 4	TTL Signal	Yellow	24 AWG
5	Reset	GND	Black	24 AWG

C Type: (Optional for TTL Signal)

Pin #	Signal	Output	Color	Size
1	PW1	TTL Signal (5V)	Blue	24 AWG
2	PW2	TTL Signal (5V)	Yellow	24 AWG



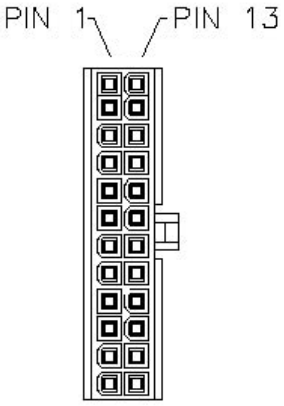
Housing: 2510,Pitch=2.54mm,2pin

※ Connector for Alarm reset Signal (Optional)

Pin #	Output	Color	Size
1	COM	Black	24 AWG
2	Vcc (+5V)	While	24 AWG

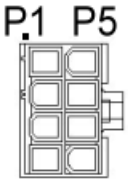
※ 24 PIN (For SSI motherboard) (Optional)

PIN	SIGNAL	Color	PIN	SIGNAL	Color
1	+3.3 VDC	Orange	13	+3.3VDC/3.3VS	Orange/Brown
2	+3.3 VDC	Orange	14	-12 VDC	Blue
3	COM	Black	15	Com	Black
4	+5VDC	Red	16	PS ON	Green
5	COM	Black	17	Com	Black
6	+5VDC	Red	18	Com	Black
7	COM	Black	19	Com	Black
8	PWR OK	Gray	20	-5V	White
9	5VSB	Purple	21	+5VDC/+5VS	RED
10	+12V2	Yellow	22	+5VDC	Red
11	+12 V2	Yellow	23	+5VDC	Red
12	+3.3 VDC	Orange	24	Com	Black



※8-Pin Molex 39-01-2080 or Equivalent (For SSI motherboard.)

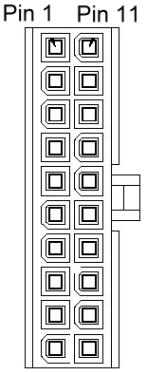
PIN	SIGNAL	18AWG	PIN	SIGNAL	18AWG
1	Com	Black	5	+12 V1	Yellow
2	Com	Black	6	+12 V1	Yellow
3	Com	Black	7	+12 V1	Yellow
4	Com	Black	8	+12 V1	Yellow



∗ 20-Pin ATX Power Connector

Connector: Molex 39-01-2200 or approved equivalent

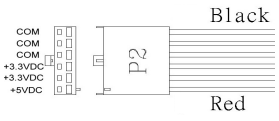
Wire Color	Signal	Pin	Pin	Signal	Wire Color
Orange	+3.3VDC	11	1	+3.3VDC	Orange
BRN.	+3.3VS	11			
Blue	-12VDC	12	2	+3.3VDC	Orange
Black	COM	13	3	COM	Black
Green	PS-ON	14	4	+5VDC	Red
Black	COM	15	5	COM	Black
Black	COM	16	6	+5VDC	Red
Black	COM	17	7	COM	Black
White	-5VDC	18	8	PG	Gray
Red	+5VDC/+5VS	19	9	+5VSB	Purple
Red	+5VDC	20	10	+12VDC	Yellow



＊Auxiliary Power Connector P2 (Optional)

Connector: Molex 90331-0010 or equivalent

Pin	Signal	Wire Color	Pin	Signal	Wire Color
1	COM	Black	4	+3.3VDC	Orange
2	COM	Black	5	+3.3VDC	Orange
3	COM	Black	6	+5VDC	Red



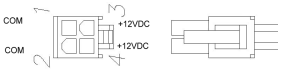
＊P12、P13、P14、P15(For Hard Drive.)

Connector: AMP 1-480424-0 or Molex 8981-04P or approved equivalent.

Pin	Signal	Wire color	Pin	Signal	Wire Color
1	+12VDC	Yellow	3	COM	Black
2	COM	Black	4	+5VDC	Red

＊P4 (for ATX12V Configurations Only)

Pin	Signal	Wire Color	Pin	Signal	Wire Color
1	COM	Black	3	+12VDC	Yellow
2	COM	Black	4	+12VDC	Yellow



✦Note 1: The output Signals and DC output wire harness shall be defined to meet the requirement of N+1 Solution.

✦Note 2: There are specially subjects to change for customized requirements with period notice.

WARNING:

Please turn off the main on/off switch and the individual power supply's switches (On each module) Before install the power supply.

4. Installation

Firstly, please assemble the frame of EFRP Series power on the chassis or case as the mounting hole. Then plug well the DC extended cable on the hard drives, motherboard. Secondary, make sure all the peripherals were plugged well. Then plug the AC power cord Into the AC inlet.

Thirdly, turn on the I/O switch. Check all the indicated LEDS work fine.

5. Hot Swappable procedures

Please refer to the followings when either one of power supply unit is found defective.

A) Locate the defective power supply by examining the individual LED on the module or the LED on the system front panel.

B) Unscrew the defective power supply unit.

C) Remove the defective power supply unit.

D) Replace a new GOOD power supply unit, insert the power supply into the power supply system chassis.

E) Check the DC OK LED which indicate the power supply status, that should be light Green.

F) Fix the new power supply unit.

6 Testing & Trouble shooting

Before applying power to the system, make sure there are no loose or incorrect connections .The input AC Power cord has been plugged well to the inlet, double check that all connection to the motherboard are properly matched .If you want to test the redundancy function , please turn on the individual power supply's on/off switches ,you will notice that if the power unit is operating properly then the AC OK. &DC OK LEDS are light GREEN.

Now plug out one of module's from the chassis., the Warning Buzzer will sound and external warning LED which displays the status of total power supply system will flashing. The AC & DC OK LED on the front panel will light out. And the

Note: If the beeping sound keep continuous when the power module be replaced or removed, you can press the alarm switch to suspend the beeping sound. Turn on the power supply which is turn off for testing earlier, the sound of the warning Buzzer will disappear, the external warning LED will turn GREEN again. The LED indicating the status of power supply will light up again, test another power supply by performing the similar procedure.

Trouble shooting

Q1. The system (Server, RAID etc), doesn't work, neither does the PS

A1: Please check the following step:

a) ATX or AT: The power supply with the ATX form factor is supposed to connect with motherboard by 20 pin or 24 pin ATX main power. So, please check the configuration and make sure the I/O switch is on. When you use the RAID or AT system, please check all connections. And the on/off push bottom or switch is on

b) Minimum load: Check the specification of power supply. Does it need the minimum load to come with system? If the answer is `Yes!', then do not test ON/OFF of system, only with the power supply & +12V DC fan.

C) Short Current Protection: The peripherals of power supply have the short conditions and power supply is latched into the off status

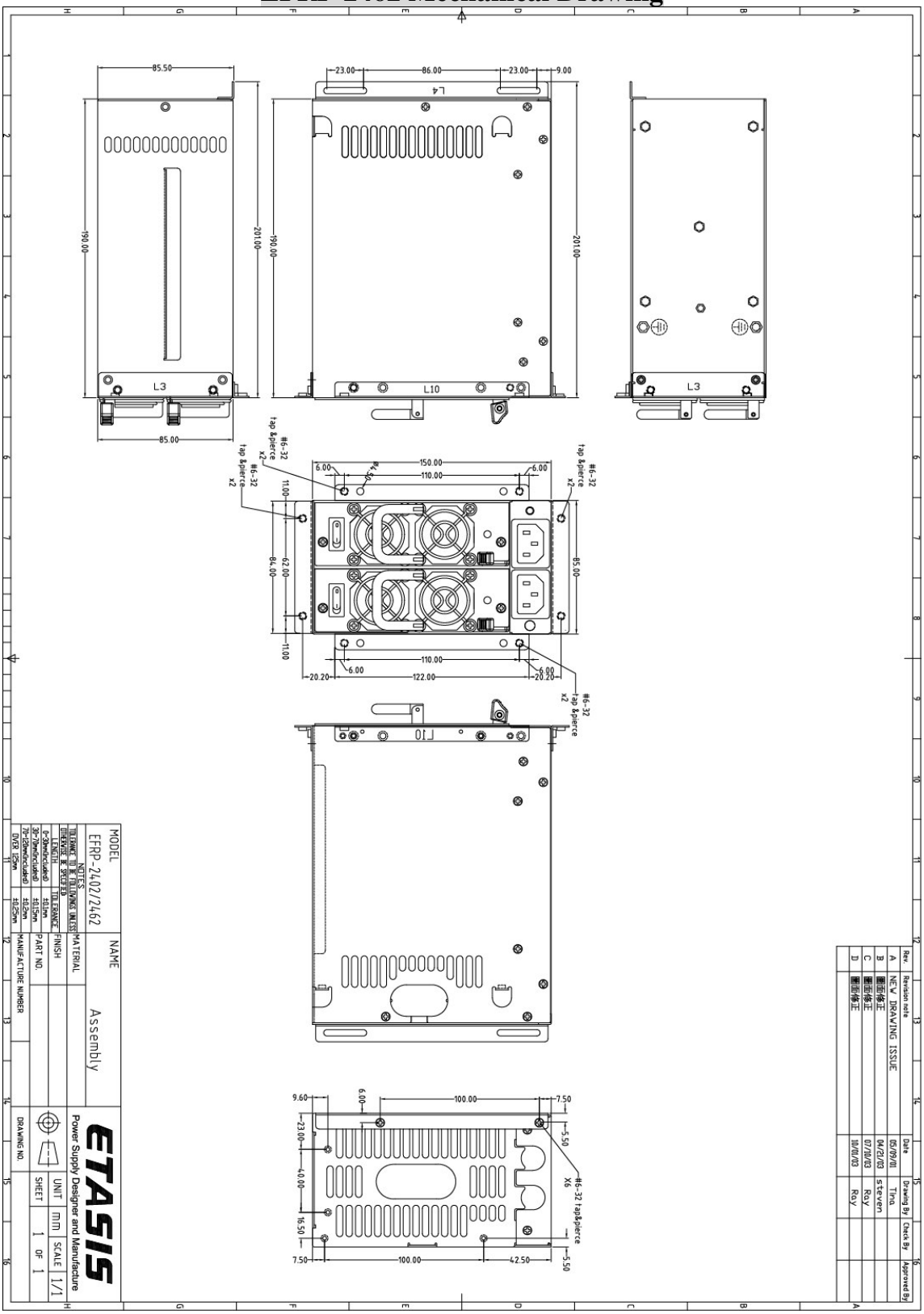
Q2: The power supply works normally, but monitor is without any signal.

A2:

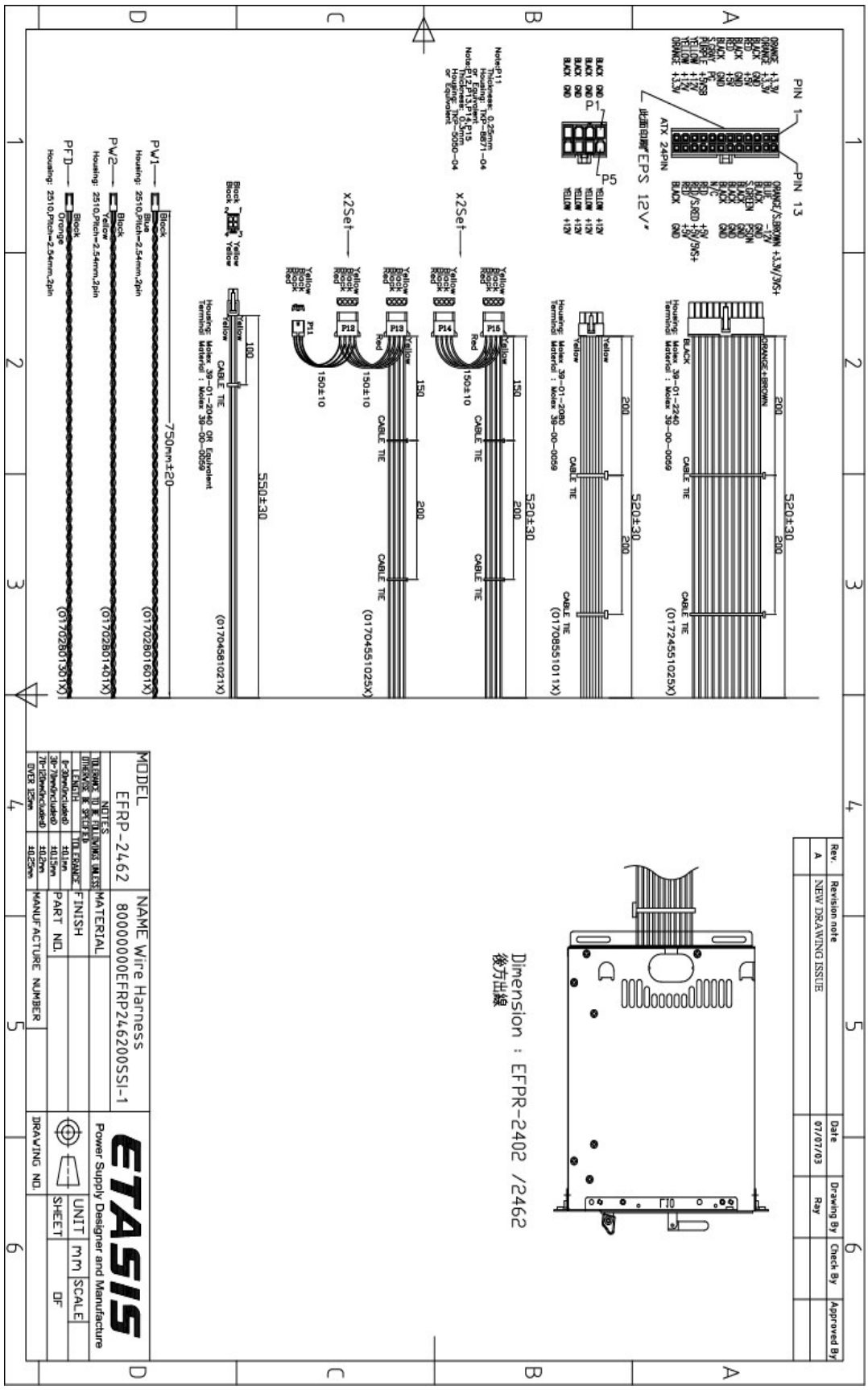
a) The VGA card is too old to support the motherboard.(without sufficient memory)

b) Conflicts with configuration. Check the configuration.

EFRP-2462 Mechanical Drawing



EFRP-2462 Wire Harness Diagram



If you have followed these directions correctly, these should be no problem. If not, please check the problem is only single unit or whole power. Then replace the new power supply unit, send the defective power supply unit to your vendor for RMA operation. Or contact with us by

1) The phone: 886-02-29955118
2) The E-mail address:sales@etasis.com.tw

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